



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-524C2      BYPASS RATIO: 4.5  
 UNIQUE ID NUMBER: 1RR006      PRESSURE RATIO ( $\pi_{00}$ ): 29.1  
 COMBUSTOR: Package 1  
 ENGINE TYPE: TF      RATED THRUST ( $F_{00}$ ) (kN): 224.8

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	179.4	227.6	84.5	18.7
AS % OF ORIGINAL LIMIT	915.4	192.9	86.1	98.4
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			107.6	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			128.9	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			146.5	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			173.0	

### DATA STATUS

x PRE-REGULATION  
 - CERTIFICATION  
 x REVISED (SEE REMARKS)

### TEST ENGINE STATUS

- NEWLY MANUFACTURED ENGINES  
 x DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 x OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	2.480	0.00	0.66	41.90	14.5
CLIMB OUT	85	2.2	2.020	0.22	1.63	32.30	10.9
APPROACH	30	4.0	0.740	4.42	18.90	10.40	2.2
IDLE	7	26.0	0.300	54.20	81.00	3.37	0.7
LTO TOTAL FUEL (kg) or EMISSIONS (g)			1016	26209	41768	16401	-
NUMBER OF ENGINES							
NUMBER OF TESTS							
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				116.5	185.4	72.9	14.5
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	102
TEMPERATURE (K)	288
ABS HUMIDITY (kg/kg)	0.005

### FUEL

SPEC	AVTUR
H/C	1.91
AROM (%)	20

MANUFACTURER: Rolls-Royce plc  
 TEST ORGANIZATION: Rolls-Royce Ltd  
 TEST LOCATION: SINFIN-Derby  
 TEST DATES: 01/09/1986

### REMARKS

- Package 1 combustor
- SN mode data scaled from 1RR004

Compliance with Fuel Venting requirements: - ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)